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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,867	08/04/2003	J. Yong Ryu	CDT 1864	5841

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KENNETH H. JOHNSON
P.O. BOX 630708
HOUSTON, TX 772630000

EXAMINER	
JOHNSON, CHRISTINA ANN	
ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/633,867	RYU ET AL.	
	Examiner	Art Unit	
	Christina Johnson	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *21-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-20, drawn to a catalyst composition and a process of making such, classified in class 502, subclass 300+.

   II. Claims 21-31, drawn to a hydrogenation process, classified in class 585, subclass 100+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a materially different process of use, such as a catalyst for the reduction of nitrogen oxides.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II and vice versa, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Mr. Kenneth Johnson on April 12, 2005, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 7-9, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hockele et al.

Hockele et al. (US 3,878,259) discloses a catalyst composition useful in the manufacture of cumene. The catalyst composition comprises 5-12 wt% nickel on an alumina support (column 2, lines 15-20). It is taught that the support comprises kappa and/or delta aluminum oxide, with an alkali content of 0.1-5 percent by weight (column 2, lines 5-15). It is taught that the carrier preferably has a surface area of 60-100 m2/g,

pore volume of 0.5-0.5 ml/g, and average pore diameters of 200-300 angstroms (column 2, lines 55-60). It is taught that the catalyst is prepared by impregnation with a nickel salt, followed by drying, and calcination at 300-400 degrees C (column 2, lines 60-65). It is taught that the catalyst may additionally contain copper (column 3, lines 15-20).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Hockele et al.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hockele et al. as applied above for claims 1-4, 7- 9, and 18-20.

The teachings of Hockele et al. are as described above for claims 1-4, 7-9, and 18-20.

The difference between the reference and the claims is that the reference does not disclose the amount of copper contained in the catalyst. However, the reference does teach that the addition of copper modifies the properties of the catalyst (column 3, lines 14-17), which suggests that the addition of copper is an art recognized result

effective variable, thereby giving one of ordinary skill motivation to optimize the amount of copper present. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that there the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

11. Claims 1-9, 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson et al.

Simpson et al. (US 5,223,472) discloses a hydroprocessing catalyst composition. The catalyst composition comprises 0.1-5 weight percent group VIII metal, 0.2-10 weight percent of group VI metals, and a support containing delta alumina (column 1, line 65 – column 2, line 15). Suitable group VIII metals include nickel and suitable group VI metals include molybdenum (column 2, lines 15-25). The reference details the preparation of catalysts comprising nickel and molybdenum in combination. It is taught that the support particles have a surface area of 75-150 m2/g and a pore volume of 0.65-0.9 cc/g (column 5, lines 55-65). The support has a pore size distribution meeting the instant claims (refer to column 6, Table I). It is taught that the catalyst is prepared by impregnation, followed by drying and calcination (column 7, lines 1-45).

The difference between the reference and the claims is that the reference does not specifically disclose a catalyst composition having the claimed properties in combination. However, the reference discloses a catalyst support which overlaps the

ranges claimed. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

12. Claims 1-11, 13-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Best.

Best (US 4,123,462) discloses a catalyst composition comprising a mixture of nickel and rhenium on a support such as alpha alumina (column 3, lines 40-50). It is taught that the mole ratio of nickel to rhenium is in the range of from 2:1 to about 30:1 and the total nickel and rhenium present is in the range of 3-30% by weight (column 4, lines 20-25). It is taught that the catalyst is prepared by impregnation followed by drying and calcination (column 4, lines 25-35 and column 9, lines 1-5). The reference teaches that a suitable support includes alpha alumina having a surface area of about 40 m2/g (column 6, Table 1).

With respect to the properties claimed, Best does not disclose the average pore size, pore volume, or pore size distribution of the support used. However, the reference teaches that the activity of a nickel-rhenium catalyst would be effected by varying the surface area and other surface properties including pore size and pore volume and further teaches that generally, the greater dispersion of the nickel and rhenium metals on higher surface area supports produce more active Ni-Re catalysts (column 6, lines 35-40). Therefore, it is the position of the examiner that the reference establishes that the properties would be result effective variable, thereby giving one of ordinary skill motivation to optimize the pore size, pore size distribution and pore volume for best results. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that there the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

With respect to claims 10 and 13-15, the reference teaches that the addition of metals such as calcium, magnesium, zinc, and copper improves the selectivity and activity of the nickel-rhenium catalyst, but is silent as to the amount of added metal. It is the position of the examiner that the reference establishes that the amount of metal would be a result effective variable, thereby giving one of ordinary skill motivation to optimize for best results. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that there the general conditions of a claim

are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

13. Claims 1-9, 11-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchard et al.

Blanchard et al. (US 4,581,343) discloses a catalyst composition useful in the purification of exhaust gas. The catalyst composition comprises a platinum group metal, preferably platinum and palladium in combination and one or more base metals, including nickel, zinc, rhenium, calcium, and magnesium (column 4, lines 40-60 and column 5, lines 1-5). The catalytic metals are supported on an alumina support having a surface area of from 25-250 m2/g, preferably 70-150 m2/g and a pore volume of 0.5-2 g/cm3, preferably 0.8-1.7 cm3/g (column 3, lines 10-20). The composition is prepared by impregnation, followed by drying and calcination (columns 5-6).

The difference between the reference and the claims is that the reference does not specifically disclose a catalyst composition having the claimed properties in combination. However, the reference discloses a catalyst support which overlaps the ranges claimed. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been

obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 1-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/828,823. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Application 10/828,823 claims a catalyst composition comprising nickel on a support having a BET surface area of from 20-150 m2/g, an average pore diameter of from 100-450 angstroms, and a total pore volume of 0.4-1 cc/g (claims 1 and 7). The catalyst may further contains Cu, Pd, Re, Zn, Mg, Mo, or Bi (claim 8).

The difference between the instant claims and thos of '823 is that '823 does not specifically claim a catalyst composition having the claimed properties in combination. However, '823 claims a catalyst support which overlaps the ranges claimed. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571)

272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Johnson
Patent Examiner
Art Unit 1725
4/18/05

CAJ
April 18, 2005